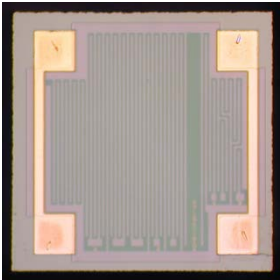


Thin Film Single-Tap Chip Resistors (.040 x .040 Series)

Chip resistors provide variations in resistor material, temperature coefficient of resistance, resistance and tolerance.



Features

- Chip Size: .040" x .040"
- Silicon Substrate
- Wire bond pads

Available Options Include:

- Resistor Tolerance to 0.1%
- Nickel Chrome or Tantalum Nitride Resistor Materials
- TCR options available

API Technologies **thin film single-tapped chip resistors .040 x .040 series** are available in a wide range of resistances and tolerances with values available from 500 kohms to 2.7 Mohm. The thin film resistor layer is made of Nickel-Chromium or Tantalum Nitride (TaN), with a gold conductor layer.

Applications for thin film center-tapped chip resistors include military and industrial hybrids, and medical, aerospace and communications equipment.

Single-tapped chip resistors are available with either passivated nickel chrome or tantalum-nitride resistor metalization.

- Nickel chrome provides excellent stability and temperature coefficient in hermetic applications
- Tantalum-nitride provides superior moisture-resistance for non-hermetic applications.

Electrical Specifications

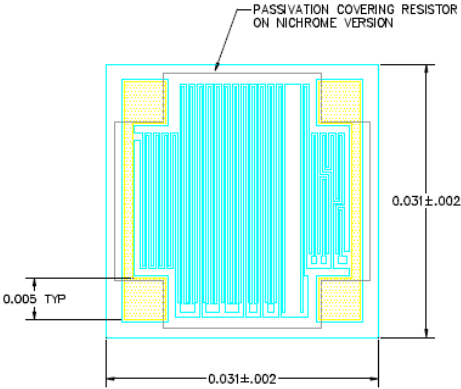
| Parameter | Limit | Test conditions |
|------------------------|--------------|--------------------------------|
| Power Rating | 500 mW | (70 C derated to 0 mW @ 150 C) |
| Life | +/-0.2% max | 1000 hours @ 125 degrees C |
| Noise | -35 dB typ | MIL-STD-202 method 308 |
| High Temp Exposure | +/-0.2% max | 100 hours at 150 degrees C |
| TCR (Nickel Chrome) | +/-50 ppm/C | -55 to 125 degrees C |
| TCR (Tantalum Nitride) | +/-125 ppm/C | -55 to 125 degrees C |
| Operating voltage | 100 VDC max | |
| Moisture resistance | +/-0.5% max | MIL-STD-202 method 106 |
| Thermal shock | +/-0.5% max | MIL-STD-202 method 107 |

Single-Tap .040 x .040 Series

Mechanical Specifications

| | |
|-----------------------------------|---|
| Substrate | Silicon with thermal oxide |
| Bond pad metalization | Bondable Gold |
| Size | .041 x .041 +/- .002 (0.78 x 0.78 mm +/- .05mm) |
| Thickness | .012 +/- .003 " |
| Bond pad dimensions | .004 x .004 minimum (0.1 x 0.1 mm) |
| Protective overcoat (passivation) | Silox glass on NiCr versions only |
| Back side | Lapped silicon |

Typical Configuration



Packaging Options

- Waffle Pack (400 resistors per pack) - standard
- Waffle Pack (50 resistors per pack)
- Waffle Pack (100 resistors per pack)
- Tape and reel

Single-Tap .040 x .040 Series

Ordering Information

All parts are 100% electrically tested, sample tested per MIL-STD-38534 section 3.4, and visually inspected to MIL-STD-883 requirements. Chips are supplied in standard 2"x 2" matrix tray packaging.

| Base part code | Ohm value (total of both halves) | Tolerance letter |
|-------------------------|----------------------------------|------------------|
| 69AL- (NiCr on Silicon) | NNNE | X |
| 69ALT- (TaN on Silicon) | NNNE | X |

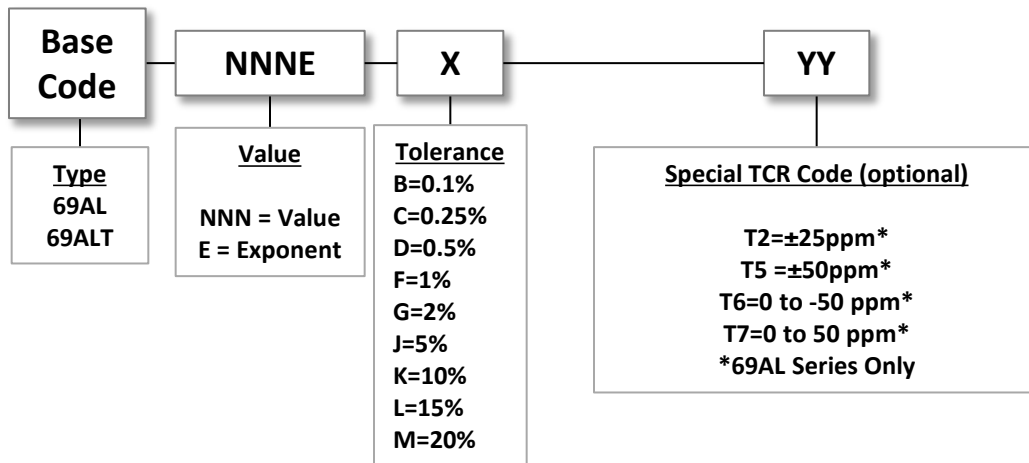
Availability

- 69AL series is available from 1 Mohm to 2.7 Mohm
- 69 ALT series is available from 500 kohms to 1.3 Mohm

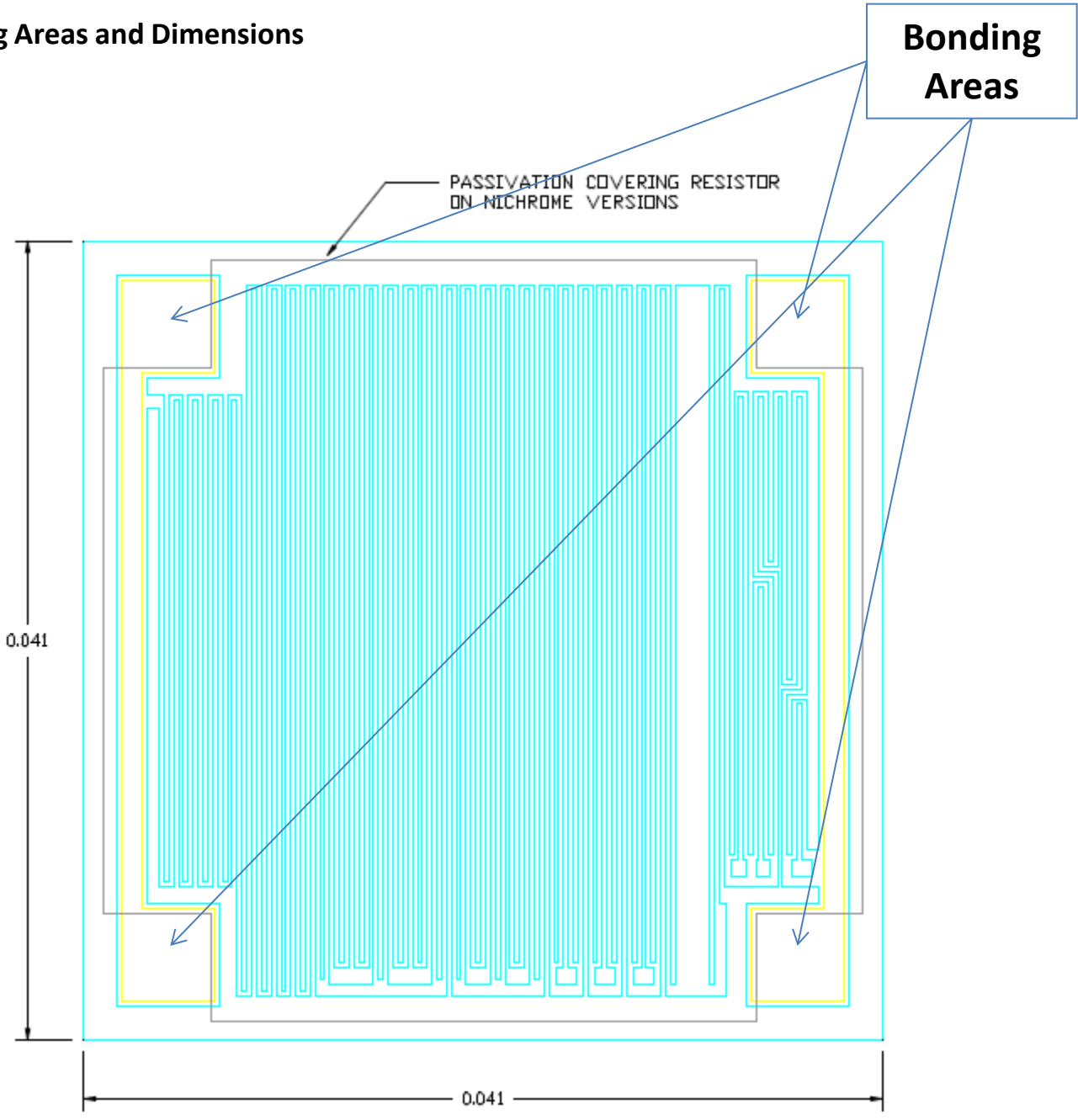
Ordering Examples

- 69AL-1004J is a 1 megohm 5% resistor with nichrome metalization.

Part Number Breakout/Designation



Bonding Areas and Dimensions



Factory Information

API Technologies, 400 Nickerson Road, Marlborough, MA 01752
TEL: 508-251-6400
FAX: 508-251-6401
http://micro.apitech.com/thin_film.aspx